

**COMBUSTION APPLIANCE SAFETY INSPECTION FORM (CASIF)**

Client: \_\_\_\_\_ Date: \_\_\_\_\_

Address: \_\_\_\_\_ City: \_\_\_\_\_

Agency: \_\_\_\_\_ Home Type: ☐-SF, ☐-MF, ☐-M/H☐ **SERVICE REQUIRED**☐ **CORRECTED**

Date: \_\_\_\_\_

**(A) IMMEDIATE SERVICE REQUIRED (Z-1)**

Appliance and description of problem	Repairs made · By whom · Date

**(B) OTHER REQUIRED REPAIRS (Z-2)**

Appliance and description of problem	Repairs made · By whom · Date

**(C) FINAL TEST RESULTS (L-5)** · **Step F-3c:** Second Living Space Ambient CO: \_\_\_\_\_ ppm

APPLIANCE	Not Applicable	CO (ppm for each burner/port)	DRAFT	SPILLAGE	COMB. AIR
Main Heater*	NA	_____, _____, _____, _____	-._____ iwc / Pa P F	Y N NA	IN OUT OK
Other Heater*	NA	_____, _____, _____, _____	-._____ iwc / Pa P F	Y N NA	IN OUT OK
	NA	_____, _____, _____, _____	-._____ iwc / Pa P F	Y N NA	IN OUT OK
Water Heater	NA	_____	-._____ iwc / Pa P F	Y N NA	IN OUT OK
Cook Top	NA	CO ppm: LR_____, RR_____, LF_____, RF_____, Others: _____, _____			
Oven & Broiler	NA	CO ppm: Oven #1_____, Broiler #1_____, Oven #2_____, Broiler #2_____			
Clothes Dryer	NA	CO ppm: _____ Inside living space? Y N Vented outdoors? Y N			

\* For Mobile Homes, see M/H WIS Appendix D regarding CAZ test requirement when an open combustion gas heater or wood stove is present.

**(D) COMMENTS AND RECOMMENDED REPAIRS**


PRE-TEST: Technician Signature: \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

POST-TEST: Technician Signature: \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

**(E) CLIENT INTERVIEW** (All combustion appliances and exhaust devices off prior to Ambient CO tests.)

- ☐ E-1 How many people live in your home? # \_\_\_\_ . Do any large pets (dogs) live or sleep indoors? N Y → # \_\_\_\_
- ☐ E-2 Which appliances burn gas? ☐-Furnace/Heater(s), ☐-W/H, ☐-Cooking, ☐-Dryer, ☐-Gas Log/Lighter, ☐-Gas F/P
- ☐ E-3 Type of gas: ☐-Natural Gas, ☐-Propane. Do any appliances burn Oil? N Y → ☐-Furnace, \_\_\_\_
- ☐ E-4 Have you noticed any gas odors or leaks? N Y → \_\_\_\_
- ☐ E-5 Have you had have any problems with any gas (oil) appliance? N Y → \_\_\_\_
- ☐ E-6 Do you use: ☐-Wood, ☐-Pellets, ☐-Coal? N Y → ☐-Stove, ☐-Insert, ☐-Fireplace, \_\_\_\_
- ☐ E-7 Do you ever use a portable kerosene or gas heater to warm any part of the house? N Y → **Unvented?** N Y  
 . If used: How long ago was it used? ☐-Earlier today, ☐-Yesterday, ☐-More than a day ago.
- ☐ E-8 **[Gas Oven]** When was you oven used last? \_\_\_\_ For how long? \_\_\_\_  
 . Do you ever use your oven to take the chill off? N Y → \_\_\_\_
- ☐ E-9 Do you have more than one furnace/heater? #: \_\_\_\_ Location(s): \_\_\_\_
- ☐ E-10 Where is your water heater located? \_\_\_\_ Do you get enough hot water? Y N
- ☐ E-11 **[Attached Garage]** Do you park cars in the garage? N Y → \_\_\_\_ # cars. Is a car warmed up in the garage? N Y
- ☐ E-12 **[FAU]** Are any rooms noticeably colder (warmer) than others? N Y → \_\_\_\_
- ☐ E-13 **[FAU]** Please show me where all registers are located (and which rooms are colder/warmer). [Check airflow during step F-3.a.]

**Conditions for Initial Living Space Ambient CO Test** (See Conventional WIS Appendix H): • All combustion appliances, air handler, and exhaust devices in living space off. • Exterior doors and windows closed. • Interior doors open (except appliance enclosure door, which is closed). • Fireplace damper closed if feasible (no fire or hot coals present).

**(F) AMBIENT CO MEASUREMENTS** (Keep exhaust devices off during Ambient CO tests.)

Record CO Analyzer readings and calculations in "Pre-Wx Test" column.		Pre-Wx Test	References
<input type="checkbox"/> F-1 (a) Set <b>Conditions for Initial Living Space Ambient CO Test</b> . (b) Zero CO analyzer <u>outdoors</u> ("outdoor" reading). (c) Draw an air sample <u>indoors</u> (see Z-6). (d) Record the <u>difference between "outdoor" and this indoor CO reading</u> .		Test Conditions set? Y N <b>Initial Living Space</b> Ambient CO: ____ ppm (with all appliances and fans <u>off</u> )	See Z-6 and WIS pages 1-5, H-1, and H-2.
<input type="checkbox"/> F-2 Check furnaces and heaters for gas leaks (see Z-3) prior to operating them. [If leaks, STOP! See Z-1.]		Gas leaks? Y N	
<input type="checkbox"/> F-3 (a) Operate all <b>furnaces and heaters</b> for 5 minutes, with all other combustion appliances and exhaust devices still <u>off</u> , and all doors and windows unchanged. (b) Draw a second air sample from the <u>same indoor</u> location (step F-1c). (c) The <u>difference between this reading and the "outdoor" reading is the "Second Living Space Ambient CO"</u> . [If it is <b>10 ppm</b> CO or more, see Z-6 (3 & 4) and WIS p. 1-5.]		Furnaces/Heaters operating? Y N <b>Second Living Space</b> Ambient CO: ____ ppm (with all furnaces and heaters <u>on</u> ) [Also record at top of Section C.]	See Z-6, and WIS pages 1-5 and H-3.
<input type="checkbox"/> F-4 Immediately following step F-3 (with all furnaces/heaters operating, fans still <u>off</u> , doors/windows unchanged), <u>check for Appliance Ambient CO (A or B) for each furnace/heater</u> : <b>A. [FAU]</b> Check for CO in register nearest the furnace. <b>B. [Wall, Floor, other non-ducted]</b> Check for CO just above the heat exchanger. (See WIS 1-5 & H-3) If any CO above <b>Second Living Space</b> Ambient is detected, corrective action is required. (See Z-1 and WIS page 1-5)		(Show CO for <u>each</u> furnace/heater.) <b>Appliance</b> Ambient CO: ____ ppm, ____ ppm ____ ppm, ____ ppm Is Appliance Ambient CO <u>higher</u> than Second Living Space Ambient reading? Y N	(No change or a decrease is OK, but <b>CO reading should not increase.</b> ) See Z-1 & Z-6 and WIS pages 1-5 and H-3.

**Conditions for Appliance Testing (X-4):** • Exterior doors & windows closed. • Interior doors closed to appliance enclosures, and to rooms with a door separating a supply register from central return (even if room also contains a fan). • Interior doors open to hallways, to rooms without supply register, and to rooms with exhaust fan, clothes dryer, etc. • Fireplace damper closed. • Exhaust devices on (see X-4.2). • **Reminder:** Check all gas appliances, even if one fails or cannot be completely tested.

Circle answers in columns to the right: Y = Yes, N = No, NA = Not Applicable, U = Unverifiable When Post-Wx Test is performed, recheck all items with answers in "Post-Wx Test" column.		Pre-Wx Test	Post-Wx Test
<b>(G) GAS HOME HEATING SYSTEM</b>			
<input type="checkbox"/> Main Heater, <input type="checkbox"/> Additional Heater . Location: ____		NA	
<input type="checkbox"/> G-1 Establish <b>Appliance CAS Test conditions</b> (different from Ambient Test conditions; <b>see X-4 &amp; WIS pages 1-6 &amp; 1-7</b> ).		Conditions set for Appliance tests? Y N	Y N
<input type="checkbox"/> G-2 Check for gas leaks (see Z-3). [If leaks, STOP! See Z-1.]		Leaks? (Step F-2) Y N	Y N



(G) GAS HOME HEATING SYSTEM (cont'd)	Pre-Wx Test	Post-Wx Test
<input type="checkbox"/> G-19 Reinstall all access covers removed for inspection.	Covers reinstalled? Y NA	Y NA
<input type="checkbox"/> G-20 After at least 5 minutes of burner operation, check listed items with room door <u>open</u> (see X-7,8,9). [See Z-6 & Z-7 to analyze results; run longer and retest if first CO is high.] *If unable to use Draft Gauge, do "Smoke Test" (see Z-7), and write in "smoke" and circle "P" (Pass) or "F" (Fail). → ↗	(Door Open) CO: _____ ppm *Draft: _____ iwc/Pa P F NA Spillage present? Y N NA Outdoor temperature: _____ °F	_____, _____, _____, _____ ppm ____ iwc/Pa P F Y N NA Temp: _____ °F
<input type="checkbox"/> G-21 If applicable, <u>close</u> door to appliance enclosure or space and repeat tests. [See X-7 for procedures and Z-6 & Z-7 to analyze test results.]	(Door Closed) Y NA CO: _____ ppm *Draft: _____ iwc/Pa P F NA Spillage present? Y N NA	_____, _____, _____, _____ ppm ____ iwc/Pa P F Y N NA
<input type="checkbox"/> G-22 <b>[FAU]</b> If burner turns off and on before room temperature reaches wall thermostat setting, note "short cycling" here and in (D). If air in the nearest register exceeds 140 °F, advise client to not use furnace until corrected.	Short cycling? Y N NA <i>If Yes, check temperature inside nearest register.</i> Cycles off at: _____ °F	Y N NA _____ °F
<input type="checkbox"/> G-23 <b>[Draft Test Hole Drilled]</b> Seal test hole in single-wall pipe with "plug button" (or button plus tape), or in double-wall with lag bolt and high-temp caulk. (See X-8.3 & WIS page 1-9.)	Test hole sealed? Y NA	Y NA
<input type="checkbox"/> G-24 Thermostat set to normal? <b>[FAU]</b> Clean filter in place?	T'stat & Filter OK? Y N NA	Y N NA
<input type="checkbox"/> G-25 <b>For each additional gas furnace/heater present</b> , repeat steps G-1 thru G-24 using blank CASIF pages 2-4.	Testing other heater? Y NA	Y NA

Circle answers in columns to the right: Y = Yes, N = No, NA = Not Applicable, U = Unverifiable When Post-Wx Test is performed, recheck all items with answers in "Post-Wx Test" column.	Pre-Wx Test	Post-Wx Test
<b>(H) GAS LOG/LIGHTER &amp; GAS FIREPLACE UNIT</b>	NA	
<input type="checkbox"/> H-1 <input type="checkbox"/> -Gas Log, <input type="checkbox"/> -Gas-Fired Log Lighter, <input type="checkbox"/> -Gas Fireplace,: Check for gas leaks (see Z-3). [If leaks, STOP! See Z-1.]	Gas leaks? Y N	Y N
<input type="checkbox"/> H-2 For Gas Log, fireplace damper must function and should be permanently blocked open (see Z-4.3.c).[If not OK, see Z-2.]	Damper OK? Y N	Y N
<input type="checkbox"/> H-3 <b>[Gas Log used as Primary Heater]</b> Check CO (see X-9). [Heat ceramic logs at least 10 minutes; run longer and retest if first CO is high.] Perform "Smoke Test" along fireplace opening (see Z-7). →	CO _____ ppm NA Visual Draft Test: P F	_____ ppm P F
<input type="checkbox"/> H-4 <b>[Gas Fireplace Unit used as Primary Heater]</b> After at least 5 minutes of operation, check CO (see X-9). [Heat ceramic logs at least 10 minutes.] Perform "Smoke Test" (see Z-7).	CO _____ ppm NA Visual Draft Test: P F	_____ ppm P F

Circle answers in columns to the right: Y = Yes, N = No, NA = Not Applicable, U = Unverifiable When Post-Wx Test is performed, recheck all items with answers in "Post-Wx Test" column.	Pre-Wx Test	Post-Wx Test
<b>(I) GAS WATER HEATER</b>	NA	
<input type="checkbox"/> I-1 Check for gas leaks (see Z-3). [If leaks, STOP! See Z-1.]	Gas leaks? Y N	Y N
<input type="checkbox"/> I-2 Is combustion air drawn from inside or outside living space? Combustion type? <input type="checkbox"/> -Open, <input type="checkbox"/> -Closed. Draft type? → →	Air from: <input type="checkbox"/> -Inside, <input type="checkbox"/> -Outside Draft: <input type="checkbox"/> -Natural, <input type="checkbox"/> -Induced	
<input type="checkbox"/> I-3 Does water heater share a common vent? [If yes, see X-3] Shares with: <input type="checkbox"/> -Furnace, _____	Common vent? Y N	
<input type="checkbox"/> I-4 Is there a large amount of carbon or rust present in the <input type="checkbox"/> -comb. chamber, <input type="checkbox"/> -center tube, <input type="checkbox"/> -draft hood, <input type="checkbox"/> -flue or vent pipe? [If Yes, mark here and describe in (D).]	Large amount of: • Carbon? Y N • Rust? Y N	

(Go to step I-5 on next page to continue testing Gas Water Heater.)

(I) GAS WATER HEATER (cont'd)	Pre-Wx Test	Post-Wx Test
<input type="checkbox"/> I-5 Is <i>Immediate Service Required</i> for the flue or vent (Z-4): missing, double or misaligned draft hood; blockage, leak, disconnection, etc.? [If Yes, see Z-1.] Are parts missing (e.g., no vent cap, no combustion chamber door), or is Other Service/Repair Required? [If Yes, see Z-2.]	<i>(Post-inspection note when ceiling insulation was installed)</i> → →  Is service/repairs required?                      Y   N	<i>[Check attic for disconnected pipes &amp; air vent blockage.]</i>  Y   N
<input type="checkbox"/> I-6 Record Btu/hr <b>input</b> ratings (see Z-8) of <i>open</i> combustion Furnace and Water Heater in this room or space* ( <i>do not include Range, Oven, or Clothes Dryer</i> ): _____ + _____ + _____ = → →  Calculate minimum combustion air requirement (see Y-2). Use <b>(a) for vent size</b> if vented <u>outdoors</u> , <b>(b) for room volume</b> , or <b>(c) for vent size</b> if vented <u>indoors</u> . <b>(a)</b> _____ (# Thousand Btu/hr) , 4 = _____ sq. in. NFVA required for each of <b>2 vents outdoors</b> (one upper and one lower).→ <b>(b)</b> _____ (# Thousand Btu/hr) x 50 = _____ cu. ft., which is the required minimum room volume (if inadequate, use c below). → <b>(c)</b> _____ (# Thousand Btu/hr) , 1 = _____ sq. in. NFVA for upper & lower vents <u>indoors</u> ( <b>minimum 100 sq. in. NFVA each</b> ).→ Is there adequate combustion air? [If No, see Z-2.] → →	Total: _____ Btu/hr <b>Input</b>  <b>(a) Existing vents NFVA sq. in.:</b> Upper**: _____, Lower: _____  <b>(b) Room volume: _____ cu. ft.</b> <b>(c) Existing vents NFVA sq. in.:</b> Upper: _____, Lower: _____  Combustion air OK?    Y   N   NA	<i>(*Applies only to units that draw combustion air from the room or space.)</i>   **See Y-2 (D) for Mobile Homes.   Y   N   NA
<input type="checkbox"/> I-7 Drill hole for draft test (see X-8). If not done, check reason: <input type="checkbox"/> -no feasible location, <input type="checkbox"/> -asbestos pipe, <input type="checkbox"/> -double-wall pipe, per restrictions on WIS page 1-9.	<i>(Both Natural &amp; Induced Draft)</i>  Drilling test hole?            Y   N   NA	
<input type="checkbox"/> I-8 To conduct appliance tests, turn on exhaust devices (X-4.2) and commonly-vented appliances (per X-3). Mark thermostat, then turn it up. Note when burner lights for 5-minute warm-up. Look for delayed ignition and roll-out (see Z-5).	Exhaust devices on?    Y    NA Delayed ignition?        Y   N   U Roll-out ignition?        Y   N   NA	Y    NA Y   N Y   N   NA
<input type="checkbox"/> I-9 Observe burner flame pattern and color. Note presence of large yellow flame, soft lazy flame, or other abnormalities. (See Z-5.1.)	Large yellow flame?    Y   N   U Soft lazy flame?        Y   N   U Other problems?        Y   N	Y   N   U Y   N   U Y   N
<input type="checkbox"/> I-10 Reinstall all access covers removed for inspection.	Covers reinstalled?    Y    NA	Y    NA
<input type="checkbox"/> I-11 After at least 5 minutes of burner operation, check listed items with room door <u>open</u> (see X-7,8,9). [See Z-6 & Z-7 to analyze results; run longer and retest if first CO is high.] *If unable to use Draft Gauge, do "Smoke Test" (see Z-7), and write in "smoke" and circle "P" (Pass) or "F" (Fail). → ↗	(Door Open) CO: _____ ppm *Draft: -_____ iwc/Pa    P   F   NA Spillage present?        Y   N   NA Outdoor temperature: _____ °F	CO: _____ ppm -_____ iwc/Pa    P   F Y   N   NA Temp: _____ °F
<input type="checkbox"/> I-12 If applicable, <u>close</u> door to appliance enclosure or space and repeat tests. [See X-7 for procedures and Z-6 & Z-7 to analyze test results.]	(Door Closed)            Y    NA CO: _____ ppm *Draft: -_____ iwc/Pa    P   F   NA Spillage present?        Y   N   NA	NA CO: _____ ppm -_____ iwc/Pa    P   F Y   N   NA
<input type="checkbox"/> I-13 <b>[Draft Test Hole Drilled]</b> Seal test hole in single-wall pipe with "plug button" (or button plus tape), or in double-wall with lag bolt and high temp caulk. (See X-8.3 & WIS page 1-9.)	Test hole sealed?    Y        NA	Y        NA
<input type="checkbox"/> I-14 Return thermostat to original setting.	Thermostat reset?    Y    NA	Y    NA

Circle answers in columns to the right: Y = Yes, N = No, NA = Not Applicable, U = Unverifiable  
 When Post-Wx Test is performed, recheck all items with answers in "Post-Wx Test" column.

(J) GAS COOK STOVE & OVEN/BROILER	Pre-Wx Test	Post-Wx Test
	NA	
<input type="checkbox"/> J-1 Check for gas leaks (see Z-3). [If leaks, STOP! See Z-1.]	Gas leaks?                      Y   N	Y   N
<input type="checkbox"/> J-2 Is there a kitchen exhaust vent to the outdoors?	Exhausts outdoors?    Y   N	

(J) GAS COOK STOVE & OVEN/BROILER (cont'd)	Pre-Wx Test	Post-Wx Test
<input type="checkbox"/> J-3 <b>[Exhausts Outdoors]</b> Is there a fan in the exhaust vent? Does fan work OK? [Mobile Home: Kitchen must have an operable exhaust fan or metal duct. See CSD Mobile Home WIS, page 1-13.]	Fan present? Y N NA Fan works OK? Y N NA	Y N NA Y N NA
<input type="checkbox"/> J-4 <b>Cook Top:</b> With exhaust fans on (X-4.2), light first burner on high for test. After minimum 15-second burn, check CO with probe held horizontally approx. 12" above the flame (see X-9.2.a). Test, turn off, light next burner & repeat.  Burn <u>Griddle</u> on high for 5 minutes and test (see X-9.2.b). →	Exhaust fans on? Y NA LR _____, RR _____ ppm CO LF _____, RF _____ ppm CO _____, _____ ppm CO Griddle: _____ ppm CO	Y NA _____, _____ _____, _____ _____, _____
<input type="checkbox"/> J-5 Operate each <u>Oven &amp; Broiler</u> burner at least 5 min. Sample CO in exhaust stream. [See X-9.2.c for test locations; run 15-30 min. longer and retest if first CO reading is high.]  <b>[Single-Burner Oven]</b> Operate on highest bake setting or "Broil". Record CO ppm on "Oven" line.  <b>[Two-Burner Oven]</b> (with broiler burner at top of oven) (1) Run on highest bake setting; record CO on "Oven" line. (2) Turn control to "Broil", wait at least one minute, and check CO again. Record this reading on "Broiler" line.  <b>[Separate Broiler]</b> Operate on "Broil" 5 to 30 minutes and check CO. Record CO ppm on "Broiler" line.	Oven #1: _____ ppm CO Broiler #1: _____ ppm CO  Oven #2: _____ ppm CO Broiler #2: _____ ppm CO	_____ ppm CO _____ ppm CO  _____ ppm CO _____ ppm CO

Circle answers in columns to the right: Y = Yes, N = No, NA = Not Applicable, U = Unverifiable When Post-Wx Test is performed, recheck all items with answers in "Post-Wx Test" column.	Pre-Wx Test	Post-Wx Test
<b>(K) GAS CLOTHES DRYER</b>	NA	
<input type="checkbox"/> K-1 Check for gas leaks (see Z-3). [If leaks, STOP! See Z-1.]	Gas leaks? Y N	Y N
<input type="checkbox"/> K-2 Is combustion air drawn from inside or outside living space?	Air from: <input type="checkbox"/> -Inside, <input type="checkbox"/> -Outside	
<input type="checkbox"/> K-3 Is the dryer properly exhausted to outdoors? → → [If not, corrective action is required (see Z-2).] Also check moisture exhaust tube for leaks, improper termination, obstructions, etc. Record Required Repairs in (B). →	Exhausted outdoors? Y N  Repairs required? Y N	Y N  Y N
<input type="checkbox"/> K-4 With exhaust devices on (see X-4.2), and lint filter clean, operate empty dryer for 2 minutes on high heat setting. With room door <u>open</u> (X-7), check CO in moisture exhaust termination or top-mount lint-screen cavity (see X-9.1.c). [Make sure <i>burner is on</i> while CO is being sampled.]	Exhaust devices on? Y NA Empty, filter clean? Y NA  (Door Open) CO: _____ ppm	Y NA Y NA  _____ ppm
<input type="checkbox"/> K-5 If applicable, <u>close</u> door to the room where dryer is located and again check CO.	(Door Closed) NA CO: _____ ppm	_____ ppm

(L) WRAP-UP PROCEDURE	Pre-Wx Test	Post-Wx Test
<input type="checkbox"/> L-1 Turn off exhaust devices operated for tests.	Exhaust devices off? Y NA	Y NA
<input type="checkbox"/> L-2 Reset thermostats to normal. <b>[FAU]</b> Clean filter in place?	T'stats & Filter OK? Y	Y
<input type="checkbox"/> L-3 Make sure all appliance access panels are in place.	Panels in place? Y	Y
<input type="checkbox"/> L-4 <b>[Draft Test Hole(s) Drilled]</b> Seal test hole in single-wall pipe with "plug button" (or button plus tape), or in double-wall with lag bolt and high-temp caulk. (See X-8.3 and WIS page 1-9.)	Test hole(s) sealed? Y NA	Y NA
<input type="checkbox"/> L-5 <b>Transfer <u>Final</u> test results to Section (C) on page 1.</b> • When Post-Wx Tests are performed, transfer <i>Post-Wx Test</i> data. • When Post-Wx Tests are <u>not</u> per-formed, use <i>Pre-Wx Test</i> data. • When both <i>Open</i> and <i>Closed Door</i> tests are performed, transfer "worst case" readings.		Data transferred to page 1? Y